

Final

Explanation of Significant Difference Report

Tipton Airfield Parcel Anne Arundel County, MD

Tipton Airfield Parcel

Fort George G. Meade Legacy Base Realignment and Closure Program

May 2014

**Contract Number: W912DR-09-D-0017
Delivery Order: 0019**



**US Army Corps
of Engineers®**
Baltimore District
**10 South Howard Street
Baltimore, MD 21201**

URS

URS Group, Inc.
12420 Milestone Center Drive, Suite 150
Germantown, MD 20876



DEPARTMENT OF THE ARMY
ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
600 ARMY PENTAGON
WASHINGTON, DC 20310-0600

Reply to Attention Of:
Base Realignment and Closure Division

MAY 08 2014

Mr. John Burchette
U.S. Environmental Protection Agency, Region III
(3HS11)
1650 Arch Street
Philadelphia, PA 19103-2029

Subject: Tipton Airfield Parcel (TAP) Final Explanation of Significant Difference; Fort George G.
Meade, Maryland

Dear Mr. Burchette:

Please find enclosed one original and three copies of the May 2014 Tipton Airfield Parcel (TAP) Final Explanation of Significant Difference (ESD) for your administrative files.

If you have any questions, please contact me at (703) 545-2474 or via email to Markus.A.Craig.civ@mail.mil.

Sincerely,

Markus A. Craig
Program Manager, Office of the Assistant Chief of
Staff for Installation Management; Base
Realignment and Closure Division

Enclosure: 1

cc:

Dr. Elisabeth Green, Ph.D (Maryland Department of the Environment) – 1 copy
William O'Donnell II (OACSIM; BRAC Division) – 1 DVD only
David Minvielle, Esq. (Army Environmental Law Division) – 1 copy
Andrea Graham (US Army Corps of Engineers) – 1 copy
Brad Knudsen (US Fish and Wildlife Service) – 1 copy
Michael Wassel (Tipton Airport Authority) – 1 copy
Steve Cardon (Fort Meade BRAC Environmental Office) – 2 copies

INTRODUCTION

Site Name:	Tipton Airfield Parcel (TAP)
Site Location:	Anne Arundel County, Maryland
Lead Agency:	U.S. Army (Army)
Support Agencies:	U.S. Environmental Protection Agency (EPA) and the Maryland Department of the Environment (MDE)

STATEMENT OF PURPOSE

This Explanation of Significant Difference (ESD) is being issued by the U.S. Army (Army) and the U.S. Environmental Protection Agency (EPA) in consultation with the Maryland Department of the Environment (MDE) in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. §9617(c), and 40 C.F.R. § 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and is now a part of the Administrative Record for the Tipton Airfield Parcel (TAP). This is the first ESD for the TAP. This ESD modifies the December 1998 Tipton Airfield Area (TAA) Operable Unit Record of Decision (ROD) and the July 1999 Tipton Airfield Parcel (TAP) Operable Unit ROD¹ to describe the implemented remedies using currently accepted terms and concepts. The NCP requires the publication of an ESD when modifications significantly change, but do not fundamentally alter, the remedial action selected in the Record of Decision (ROD) with respect to scope, performance, or cost. This ESD is required by § 9.3.1.2 of the Federal Facility Agreement (FFA) for Fort George G. Meade (Fort Meade) in Anne Arundel County, Maryland. Section 9.3.1.2 requires that Army prepare an ESD documenting: (1) the need for sweeps of ordnance; (2) appropriate disposal of ordnance if discovered; and (3) land use control requirements. All of these components were implemented with the original remedy pursuant to a July 9, 1998 Decision Document (DD), as modified in December 1998.

This ESD has been prepared to provide the public with an explanation of modifications to the RODs that include land use controls to prevent human exposure to munitions and explosives of concern (MEC) and contaminated groundwater. This ESD summarizes the information that supports this modification and confirms that the modified remedial action complies with the statutory requirements of Section 121 of CERCLA, 42 U.S.C. §9621. This ESD amends the RODs to clearly describe the MEC and groundwater use-related land use controls (LUCs) that were implemented under the July 1998 DD and November 1998 DD Addendum issued and implemented by the Army.

This ESD and the information relied on in support of it are included in the Administrative Record. The Administrative Record is available for public review at the following two locations:

1) Anne Arundel County Library
2624 Annapolis Road
Severn, MD 21144

Phone: (410) 222-6280

Hours: Mon through Thu: 9:00 am to 9:00 pm,
Fri and Sat: 9:00 am to 5:00 pm

2) Environmental Management Office
Attn: INME-PWE
Fort Meade, MD 20755-7068

Phone: (301) 677-9648

Hours: 7:30 am to 4 pm (Mon - Fri)

¹ The July 1999 TAP Operable Unit ROD was dated June 1999; however, it was signed by the Army and EPA on 13 July 1999 and 20 July 1999; respectively. In some documents it may be referred to as the June 1999 TAP Operable Unit ROD. However, the date of issuance of a ROD is the date upon which it is signed by the EPA.

SUMMARY OF THE SITE HISTORY AND SITE CONDITIONS

The TAP is located in Anne Arundel County within the township of Laurel, Maryland. The 346-acre TAP is a former part of Fort Meade released under the Base Realignment and Closure (BRAC) Act of 1988 to Anne Arundel County for use as a small municipal airfield for light fixed wing and rotary wing aircraft. Approximately 109 acres of the TAP constitute flight surface and support areas while the remaining 237 acres vary from unmanaged turf to wooded areas. The developed portion of the TAP consists of the runway, taxiway, parking apron, four hangars (Buildings 80, 84, 85, and 90), flight operations center (Building 82), control tower (Building 89), vehicle parking areas, and ancillary support buildings. A storm water management system is located under the airfield. Approximately 20 acres of the 346 acres is Inactive Landfill 2, which has been retained by the Army.

Use of the TAP as a military range has been documented as far back as the early 1920s. In Special Military Maps from 1923, the area later designated as Tipton Airfield was identified as an artillery impact area. A 1941 Cantonment Map shows that two ranges were located within the future Tipton airfield.

The TAP has been investigated and various response actions have been taken. Several areas were identified in late 1989 that required environmental investigation (Evaluation Areas): Inactive Landfill 1, Inactive Landfill 2, Inactive Landfill 3, the Fire Training Area (FTA), and the Helicopter Hangar Area (HHA). In addition, the Little Patuxent River flows through the TAP and is assessed as a separate site for MEC only. Table 1 summarizes the affected media and the remedies for each Evaluation Area that have been selected prior to and subsequent to the listing of the facility on the National Priorities List (NPL). Despite the fact that the TAP was transferred to Anne Arundel County, the Army remains responsible for the selection and implementation of response actions at the TAP. Figure 1 presents the location of the TAP within the BRAC parcel and Figure 2 depicts the Evaluation Areas within the TAP.

Fort Meade was listed on the NPL on July 28, 1998. Eleven years later, in 2009, EPA, Army and the Architect of the Capitol signed a FFA. Following NPL listing, two RODs were issued by the Army and EPA and concurred on by the State of Maryland for the Evaluation Areas at the TAP. The December 1998 ROD addresses the selected remedy for the FTA, HHA, and Inactive Landfill 3).

The July 1999 ROD addresses the selected remedy for Inactive Landfills 1 and 2 and the entire TAP Groundwater Operable Unit (OU).

Inactive Landfill 1 – The Inactive Landfill 1 covers approximately 8 acres and is located in the north-central portion of the BRAC parcel between the Little Patuxent River and Bald Eagle Drive. The Inactive Landfill 1 was used as an unlined sanitary landfill from approximately 1950 to 1964; however, no information has been found indicating the types of material disposed of at this location. The Inactive Landfill 1 is considered part of the TAP although it is physically separated from the airfield by the Little Patuxent River.

A 3-foot (ft) thick earthen MEC safety cover was installed at Inactive Landfill 1 between August 1998 and October 1999. The site is monitored with an annual inspection to ensure that the cover is not compromised by erosion. The July 1998 Decision Document, Safety Precautions to be Taken at Tipton Airfield, Fort George G. Meade, Maryland, as amended by the November 1998 Decision Document, provides LUCs to prevent MEC exposure at the TAP.

The July 1999 ROD states that the selected remedy for Inactive Landfill 1 is No Further Action (NFA) for soils, surface water, and sediment with groundwater monitoring. The ROD states that every 2 years the Army (or designee) will collect groundwater samples at the TAP from certain wells and the data will be provided to the EPA and MDE. The Tipton area groundwater is addressed in the July 1999 ROD and supersedes the groundwater discussion in the December 1998 ROD. The groundwater monitoring recommendations in the July 1999 ROD apply to the entire TAP (including Inactive Landfill 3, the FTA

and the HHA addressed in the previous December 1998 ROD). Also, the July 1999 ROD states that a statutory review will be conducted every 5 years to ensure that the remedy continues to provide adequate protection of human health and the environment at Inactive Landfill 1.

Inactive Landfill 2 – The Inactive Landfill 2 is located within the BRAC parcel on approximately 10 acres of land north of Wildlife Loop Road, approximately 450 ft north and east of the Little Patuxent River. The Inactive Landfill 2 was initially operated as a soil borrows area (1938 to 1942) and then used as an unlined rubble disposal area until 1986. The Inactive Landfill 2 was part of the BRAC Tipton Army Airfield but was excised from the legal description of the BRAC property and was retained by the Army.

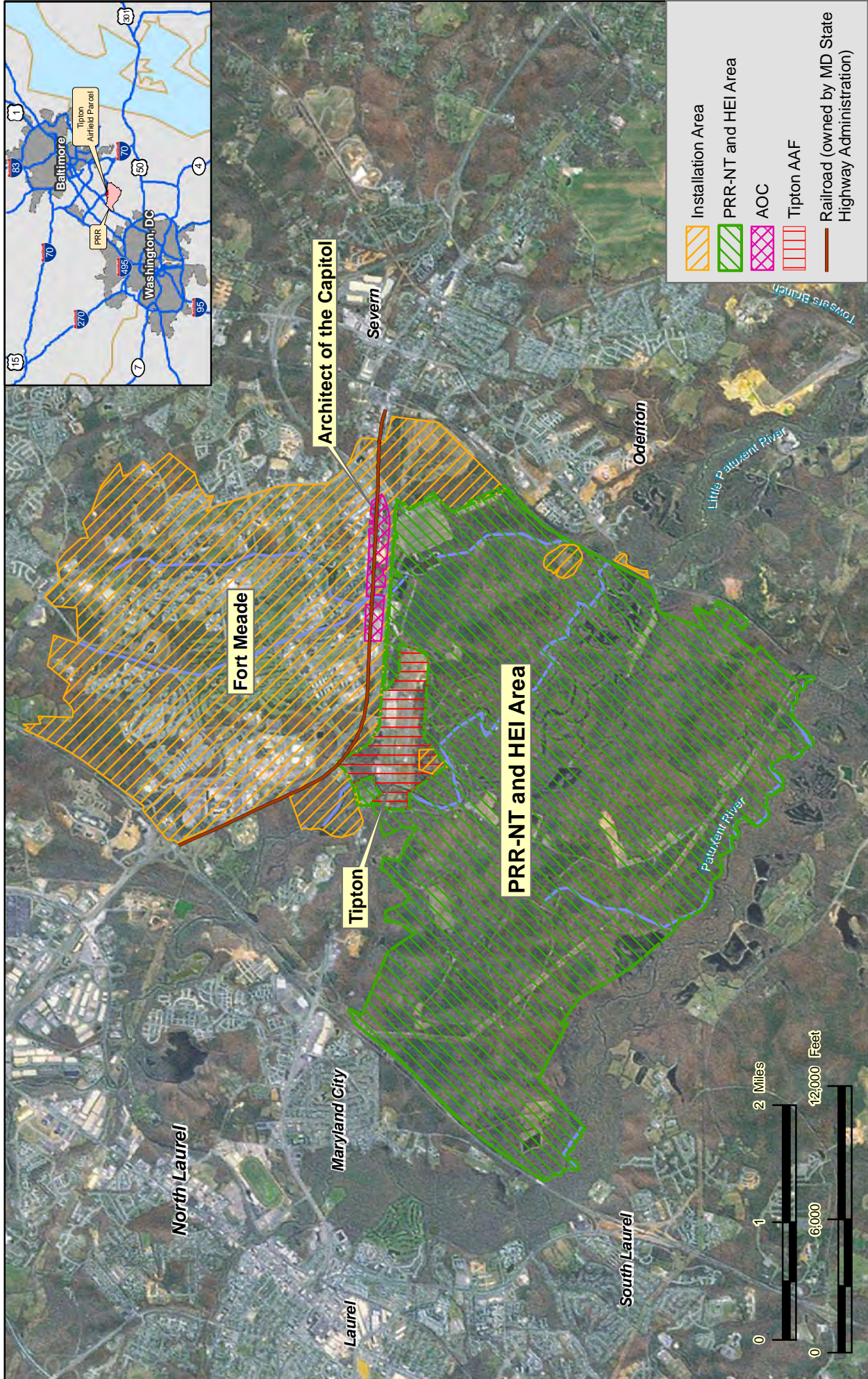
The July 1999 ROD incorporates by reference the July 1998 DD that states that the selected MEC remedy for Inactive Landfill 2 is the installation and maintenance of a fence around Inactive Landfill 2 (installation complete) with annual inspections. The perimeter fence encloses approximately 20 acres, including the 10-acre landfill. The perimeter fence is estimated to be 3,500 ft long and 7' feet high. The LUCs prevent human exposure to MEC described above for Inactive Landfill 1, are also applicable for Inactive Landfill 2. The July 1999 ROD states that the selected remedy for Inactive Landfill 2 is NFA for soils, surface water, and sediment with groundwater monitoring. The LUCs prohibiting groundwater uses except for conducting environmental studies, as well as the biennial groundwater monitoring and imposed by the July 1998 DD as amended by the November 1998 DD are also applicable to Inactive Landfill 2. As stated in the July 1999 ROD, a statutory review will be conducted every 5 years to ensure that the remedy continues to provide adequate protection of human health and the environment at Inactive Landfill 2.

Inactive Landfill 3 – The Inactive Landfill 3 covers approximately 78 acres and is located on the TAP in the eastern portion of the airplane runway area. The Inactive Landfill 3 was initially used as a sand borrow area. During the late 1940s and 1950s, the area was used as a sanitary and “leaf-dump” landfill. The Tipton Army Airfield was constructed over the fill area in 1963. During construction of the airfield, much of Inactive Landfill 3 was excavated and the materials were disposed off-post. The airfield construction plans, which include both pre-and post-construction geotechnical soil boring logs, indicate that landfill materials were removed from beneath all runway construction areas for structural reasons. However, landfilled materials are still present in the areas next to the runways.

In 1998, a surface sweep for MEC was conducted in and around Inactive Landfill 3 in accordance with the selected remedy presented in the July 1998 DD. Subsequent MEC sweeps were conducted in 2001 and 2006 (years 3 and 7, respectively, per the remedy described in the July 1998 DD, as incorporated into the December 1998 ROD). LUCs to protect against the risk of encountering MEC imposed by the July 1998 DD as amended by the November 1998 Decision Document described above for Inactive Landfill 1, were also referenced in the December 1998 ROD and are also applicable for Inactive Landfill 3.

The Test Pit Excavations, Inactive Landfill No. 3 Final Report (USACE, 1998) states that sixty-nine randomly selected test pits were excavated with fifty-four 100' x 100' grids to a depth of either three feet or the top of the landfill material, whichever was encountered first. This information was used to show the thickness of the landfill cover. The Report concluded that the average landfill cover at Inactive Landfill 3 was 37 inches.

The December 1998 ROD states that the selected remedy for Inactive Landfill 3 is NFA for soils with groundwater monitoring. The LUCs restricting groundwater use, the biennial groundwater monitoring imposed by the November 1998 DD and described above for IAL 1, are also applicable for Inactive Landfill 3. As stated in the December 1998 ROD, a statutory review will be conducted every 5 years to ensure that the remedy continues to provide adequate protection of human health and the environment at Inactive Landfill 3.



U.S. Army Corps of Engineers, Baltimore District		Fort George G. Meade	
USA Prime Imagery, 11/15/2008.		Property Boundaries Map	
CLIENT	REVISION NO	SCALE	TITLE
	0	1:72,000	
	CHECKED:	PROJ MGR	
	10/18/10	10/18/10	
G:\Projects\Fort Meade\PA_S1_New\Projects\Planes_Overall\Location\Figure1_PropertyBoundaries.mxd		200 Orchard Ridge Drive	
		Gaithersburg, MD 20878	
		Figure 1	



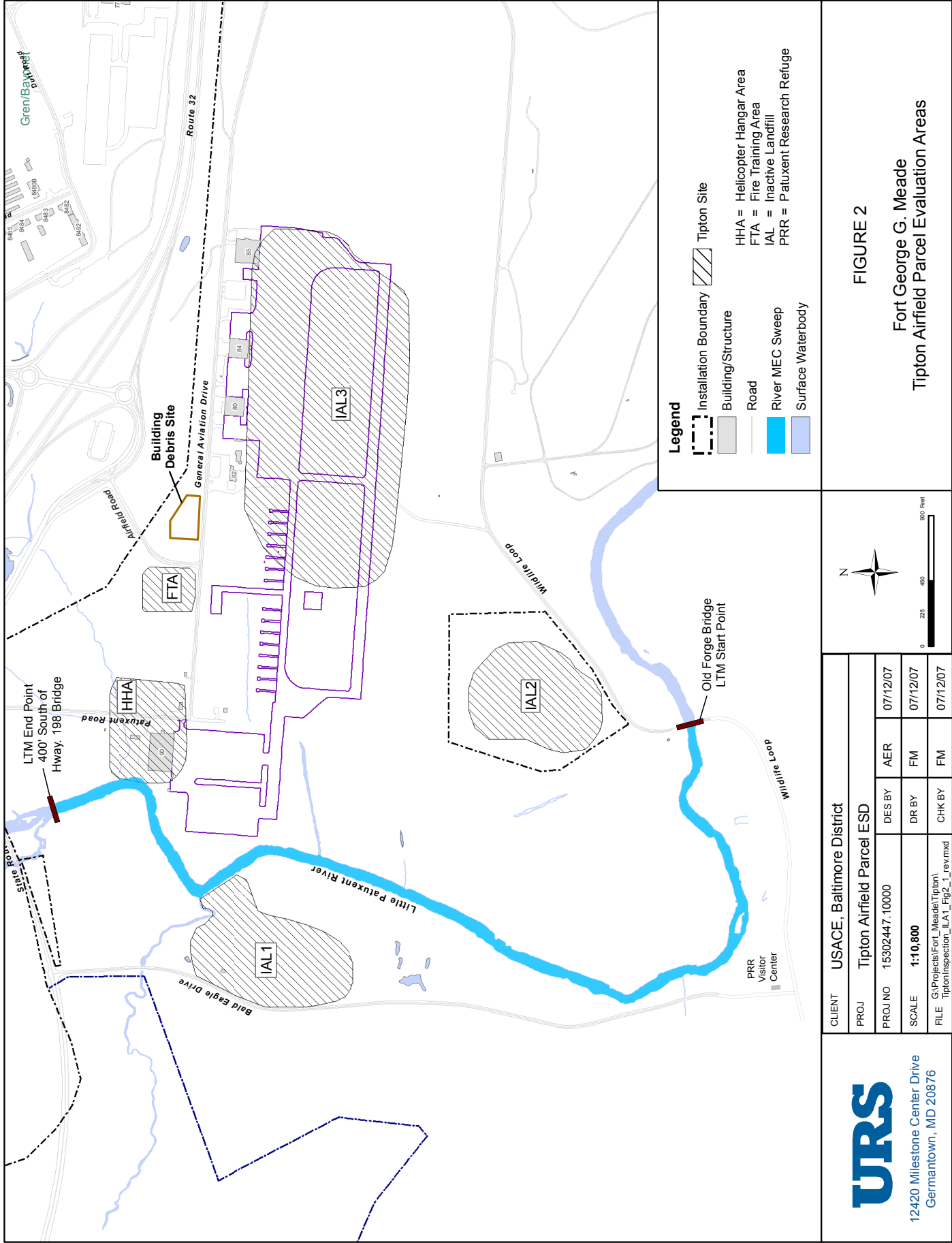


FIGURE 2

Fort George G. Meade
Tipton Airfield Parcel Evaluation Areas

<p>12420 Milestone Center Drive Germantown, MD 20876</p>	CLIENT USACE, Baltimore District				
	PROJ	Tipton Airfield Parcel ESD			
	PROJ NO	15302447.10000	DES BY	AER	07/12/07
	SCALE	1:10,800	DR BY	FM	07/12/07
	FILE	G:\Projects\Fort_Meade\Tipton\TiptonInspection_ILA1_Fig2_1_rev.mxd	CHK BY	FM	07/12/07

Fire Training Area – The FTA covers approximately 2 acres and is located north of Airfield Road and about 800 ft east of the HHA. The area was constructed around 1979 for training purposes by the Fort Meade Fire Department. Fires were typically set inside the fire training pit or in portable burn pans by using gasoline or aviation fuel. The fire training pit and the oil-water separator were removed in 1998.

A 1996 MEC removal action was conducted over the TAP, including the FTA and the (HHA). With the exception of the interior areas of the inactive landfill sites and areas beneath water, all unpaved areas of the TAP were searched for potential MEC to a depth of 4 ft. To protect against the risk of encountering MEC, the LUCs imposed by the July 1998 DD and described above for Inactive Landfill 1, were incorporated into the December 1998 ROD and are also applicable for the FTA.

The December 1998 ROD states that the selected remedy for the FTA is NFA for soils with groundwater monitoring. The LUCs restricting groundwater use, and the biennial groundwater monitoring imposed by the July 1998 DD as amended by the November 1998 DD described above for Inactive Landfill 1 were referenced in the December 1998 ROD and are also applicable for the FTA. As stated in the December 1998 ROD, a statutory review will be conducted every 5 years to ensure that the remedy continues to provide adequate protection of human health and the environment at FTA.

Helicopter Hangar Area - The HHA includes Building 90 (the Helicopter Hangar) and adjacent areas located at the northwest corner of the airfield. The Helicopter Hangar Area is roughly bounded by the Little Patuxent River to the west, an unnamed tributary to the Little Patuxent River to the north, Patuxent Road to the east, and the helicopter parking area to the south. It is located approximately 800 ft west of the FTA and covers approximately 5 acres.

Hangar 90 was cleared and taken out of service when it was decommissioned in early 1996. As noted under the FTA description, a 1996 MEC removal action was conducted at the HHA to search for potential MEC to a depth of 4 ft. The LUCs to protect against the risk of encountering MEC, imposed by the July 1998 DD and described above, were referenced in the December 1998 ROD and are also applicable for the HHA. In 1999, the oil/water separators, gasoline evaporation pits, acid pits, and piping related to the hangar area were removed.

The December 1998 ROD states that the selected remedy for the HHA is NFA for soils with groundwater monitoring. The LUCs restricting groundwater use, and biennial groundwater monitoring, imposed by the July 1998 DD as amended by the November 1998 DD Addendum described above for IAL 1, were referenced in the December 1998 ROD and are also applicable for the Helicopter Hangar Area. As stated in the December 1998 ROD, a statutory review will be conducted every 5 years to ensure that the remedy continues to provide adequate protection of human health and the environment at HHA.

Table 1. Summary of Affected Media and Selected Remedies for the TAP Evaluation Areas

Evaluation Areas	Affected Media and Selected Remedy				
	Soils	Surface Water	Sediment	Subsurface MEC	Groundwater
IAL1	NFA ⁽¹⁾	NFA ⁽¹⁾	NFA ⁽¹⁾	Safety cover, annual inspections, & LUCs ⁽³⁾	LTM & LUCs ^(1, 4)
IAL2	NFA ⁽¹⁾	NFA ⁽¹⁾	NFA ⁽¹⁾	Site fence, annual inspections, & LUCs ⁽³⁾	LTM & LUCs ^(1, 4)
IAL3	NFA ⁽²⁾	n/a	n/a	Periodic sweeps & LUCs ⁽³⁾	LTM & LUCs ^(1, 4)
FTA	NFA ⁽²⁾	n/a	n/a	n/a	LTM & LUCs ^(1, 4)
HHA	NFA ⁽²⁾	n/a	n/a	n/a	LTM & LUCs ^(1, 4)

Notes:

IAL = inactive landfill; FTA = fire training area; HHA = helicopter hangar area; MEC = munitions and explosives of concern; NFA = no further action; n/a = not applicable; LTM = long-term monitoring; LUCs = land use controls

Sources:

- (1) *Final Record of Decision, Tipton Airfield Parcel (TAP) Operable Unit, Fort George G. Meade, Fort Meade, Maryland*, June 1999. EPA/ROD/R03-99/006.
- (2) *Final Record of Decision, Tipton Airfield Area Operable Unit, Fort George G. Meade, Fort Meade, Maryland*, December 1998. EPA/ROD/R03-99/005
- (3) Decision Document, 9 July 1998, *Safety Precautions to be Taken at Tipton Airfield, Fort George G. Meade, Maryland*.
- (4) Decision Document Addendum, 6 November 1998, *Safety Precautions to be Taken at Tipton Airfield, Fort George G. Meade, Maryland*.

SITE CONTAMINATION

Soils, Surface Water, and Sediment Media

The human health and ecological risk assessment findings conducted during the 1998 Remedial Investigation (RI) activities at the TAP indicated that contaminants detected in the environment at the TAP do not pose an unacceptable risk to human health and the environment under the conditions of military/industrial/non-residential use.

The human health cancer risk and non-cancer hazards calculated under the current and reasonably anticipated future land use scenarios (i.e., excavation/site worker and trespasser) for the soils, surface water, and sediment media were within the EPA's acceptable cancer risk range of 1×10^{-6} and 1×10^{-4} below the hazard index (HI) threshold of 1², respectively. The ecological risk assessment also evaluated surface soil, sediments, and surface water exposure to terrestrial and aquatic receptors. The use of the site as the approach area for the airfield discourages ecological receptors. The management of the TAP as an airfield prevents the growth of a diverse plant community, thus reducing the natural habitat for terrestrial receptors.

Groundwater Medium

The EPA conducted a supplemental human health risk assessment in 1998 to address the groundwater medium at the TAP. Incidental ingestion of groundwater for a future site worker at Inactive Landfill 1 and Inactive Landfill 2 produced a cancer risk within EPA's acceptable cancer risk range and an HI greater than 1. Also, EPA performed its own groundwater risk analysis in which tap water exposure to a hypothetical future resident was evaluated. The results were above EPA's acceptable cancer risk range and the HI threshold of 1. The results of EPA's groundwater risk analysis indicated that unrestricted use of groundwater at the TAP would produce adverse health effects for hypothetical future residents.

The contaminants detected in the groundwater at the TAP include three volatile organic compounds (VOCs), including benzene, carbon tetrachloride, and 1,1,2,2-tetrachloroethane (1,1,2,2-TCA); a semivolatile organic compound (SVOC) bis(2-ethylhexyl)phthalate; a polycyclic aromatic hydrocarbon (PAH) naphthalene; and three metals, including arsenic, iron, and manganese. Subsequent long-term groundwater monitoring (LTGM) has not detected exceedances of the MCLs beyond the footprint of the landfill. However, LTGM will be continued in order to verify that any contaminants in the groundwater migrating from the landfill are not at levels that present a risk to human health or the environment.

MEC

² The cancer risk range expressed as 1×10^{-6} to 1×10^{-4} means that, for every 1 million to 10,000 people exposed, one excess cancer may occur as a result of exposure to site contaminants. The HI is derived by dividing the anticipated dose of a contaminant through a particular site exposure to an amount at which no adverse health effects are expected to occur at the same exposure level. An HI of 1.0 or less would indicate that no adverse health effects are anticipated.

The following is a list of actions and safety precautions taken by the Army at the TAP:

Ordnance Survey (1994): The Army commissioned an ordnance survey covering a 1,400-Acre Parcel of the airfield to assess the extent of ordnance remaining at the site and surrounding areas. During this action, a total of 1,200 ordnance items were recovered from the site.

Unexploded Ordnance (UXO) Risk Assessment (1995): A UXO risk assessment for Tipton Airfield was performed in conjunction with the Explosives Safety Submission for Ordnance and Explosives Removal and Property Release, Tipton Airfield, Fort Meade, Maryland in 1995. The area was assigned an overall Risk Assessment Code of 1³ and recommended for additional UXO clearance.

Ordnance Clearance (1996-1997): The Army searched for ordnance from all accessible areas to a 4 ft depth. Inactive landfill areas, wetlands, and all paved surfaces were excluded. During this action, 1,548 ordnance items were recovered, rendered safe, and disposed. In addition, more than 33 tons of scrap (concrete, metal, and miscellaneous debris) were recovered incidental to the ordnance removal. Much of this material was recycled at local facilities.

Miscellaneous Debris Removal (Summer 1998): Several items that had been identified during the ordnance removal projects were recovered for disposal. Items removed included several 55-gallon drums and an old vehicle-mounted storage tank.

Ordnance Removal, Airfield Drainage Swale (1998): The Army conducted an ordnance removal from a drainage swale located on the airfield where 420 additional items were recovered from areas previously inaccessible due to standing water. This was the last ordnance removal action at all known areas on the airfield which had been identified as containing potential MEC.

Ordnance Safety Measures, Inactive Landfill 3 (1998): The Army performed ordnance survey work in and around Inactive Landfill 3. A long-term monitoring plan was developed for Inactive Landfill 3 that provided a sweep schedule (years 3, 7, and then every 5 years) to ensure that no ordnance items have migrated to the surface through frost action.

Ordnance Safety Measures, Building Debris Site (1998): The Army conducted additional ordnance safety measures at a 2.5-acre area designated as the Building Debris Site. This site was made a priority for reuse because it was centrally located. Ordnance clearance and construction of a vehicle parking lot was completed at the site.

Ordnance Safety Measures, Inactive Landfill 2 (1998): The Inactive Landfill 2 could not be cleared of suspected ordnance because the area contains large amounts of rubble debris and is partially composed of wetlands with a shallow water table. The selected remedy was installing a 7-ft high chain link fence with three-strand barbed wire around the landfill. The fence ties into an existing fence along Wildlife Loop Road. The Inactive Landfill 2 was not included in the BRAC TAP transfer to Anne Arundel County.

Ordnance Safety Measures, Inactive Landfill 1 (1998-1999): An ordnance clearance to a 4-ft depth and the construction of a safety cover was performed at Inactive Landfill 1. During this action, 54 ordnance items were recovered, rendered safe and disposed. In addition, more than 760 tons of scrap (concrete, metal, and miscellaneous debris) were recovered incidental to the ordnance removal, and recycled at local facilities. The area of Inactive Landfill 1 not cleared of suspected MEC is approximately 5.5 acres; and a 3-ft thick safety cover was constructed.

Long-term Monitoring (Annual Sweeps), Little Patuxent River (2002 – 2012): Ordnance sweeps are conducted every year along the Little Patuxent River and riverbanks (approximately 8 acres) from the Old Forge Bridge to a point 400 ft south of Maryland Highway 198. This section of the Little Patuxent River

³ “Risk” in this context refers to the probability of encountering UXO. The risk range is 0 (no probability) to 1 (high probability).

is located near the northwest corner of the TAP between Inactive Landfill 1 and the HHA. Any MEC items discovered are documented in the annual LTM reports and these reports are submitted to the Army, EPA, and MDE.

A list of key events at the TAP is provided in Table 2 pertaining to the site's investigation and remediation, land use, groundwater use prohibitions, and protection against encountering MEC.

Table 2. Chronology of Site Events

Site Investigation/Remediation Events	Date
<u>TAP Evaluation Areas</u>	<u>Periods of Operation</u>
Inactive Landfill 1 (unlined sanitary landfill)	1950 to 1964
Inactive Landfill 2 (soil borrow area and unlined rubble disposal area)	1938 to 1986
Inactive Landfill 3 (soil borrow area and sanitary and leaf-dump landfill)	Late 1940s to 1963
Fire Training Area (fire training area)	1979 to 1998
Helicopter Hangar Area (helicopter maintenance)	Early 1980s to 1996
The TAP Evaluation Areas are identified in the Enhanced PA Report .	October 1989
Site Inspection (SI) Study addressed all 5 Evaluation Areas at the TAP.	October 1992
SI Study Addendum - Fire Training Area, Helicopter Hangar Area, and Inactive Landfill 2 of the TAP were addressed.	1994
Construction Specifications, Fire Training Area Demolition, Landfill Capping Projects	January 26, 1996
Final RI Report for Inactive Landfill 1, Inactive Landfill 2, Inactive Landfill 3, and Clean Fill Dump was submitted.	August 1998
Final RI Report for Helicopter Hangar Area and Fire Training Area was submitted.	October 1998
Fire Training Area Removal Action Report was submitted.	October 28, 1998
Final Proposed Plan for the Helicopter Hangar Area, Fire Training Area, and Inactive Landfill 3 was issued.	November 1, 1998
ROD for Helicopter Hangar Area, Fire Training Area, and Inactive Landfill 3 was issued.	December 1998
Helicopter Hangar Area Removal Action Report was submitted.	19 March 1999
Proposed Plan for Tipton Army Airfield, Inactive Landfill 1, and Inactive Landfill 2 was issued.	April 1999
ROD for Inactive Landfill 1 and Inactive Landfill 2 was issued.	June 1999
Inactive Landfill 1 and Inactive Landfill 2 Maintenance Inspection Report was completed.	April 2002
First 5-Year Review Report was submitted	March 2005
2006 Inactive Landfill 1, Inactive Landfill 2, and Inactive Landfill 3 Annual Maintenance Inspection Report	May 2007
2007 Inactive Landfill 1 and Inactive Landfill 2 Annual Maintenance Inspection Report	February 2009
Second 5-Year Review Report (Draft) was submitted	April 2009
2009 Inactive Landfill 1 and Inactive Landfill 2 Annual Maintenance Inspection Report	February 17, 2010
2008 Inactive Landfill 1 and Inactive Landfill 2 Annual Maintenance Inspection Report	April 23, 2010
2010 Inactive Landfill 1, Inactive Landfill 2, and Inactive Landfill 3 Annual Maintenance Inspection Report	December 9, 2010
2012 Inactive Landfill 1 and Inactive Landfill 3 Annual Maintenance Inspection draft Report	September 18, 2012
Land Use Events	Date
Defense Authorization Amendments and Base Realignment and Closure Act (BRAC) of 1988 mandated the closure of 9,000 acres of the FGGM's original 13,670 acres.	1988

Maryland Department of Natural Resources evaluation of surplus property delineated the natural features and land uses of the 9,000 acres BRAC parcel.	January 1990
1991 Military Construction Appropriations Act directed the transfer of 7,600 acres of the 9,000 acres (BRAC parcel) to the Department of the Interior (DOI) for inclusion in the Patuxent Research Refuge (PRR).	October 16, 1991
DOI 1992 Transfer Assembly , 498.2 acres transferred to DOI	November 17, 1992
Decision Document, Safety Precautions to be Taken at Tipton Airfield documents the approval of the proposed safety actions taken by the Army for Inactive Landfill 1, Inactive Landfill 2, and Inactive Landfill 3.	July 9, 1998
FGGM was formally added to the EPA's Final National Priorities List (NPL)	July 28, 1998
Decision Document Addendum, Safety Precautions to be Taken at Tipton Airfield further clarifies the institutional controls to include the prohibition of the use of groundwater at the TAP.	November 6, 1998
EPA submitted a Notice of Intent to delete Tipton Army Airfield from the NPL and Request for Comments.	1 September 1999
Finding of Suitability to Transfer (FOST) documented the environmental conditions of the TAP for the land transfer to Anne Arundel County, MD.	October 1999
State of Maryland – Quitclaim Deed for Surplus Airfield Property	July 2001
Groundwater LTGM Events	Date
LTGM Plan	June 2001
Biennial LTGM Report , Summer 2001 Sampling Event	December 2002
Biennial LTGM Report , Summer 2003 Sampling Event	January 2004
Biennial LTGM Report , Summer 2005 Sampling Event	September 2006
Biennial LTGM Report , August 2007 Sampling Event	September 2008
Biennial LTGM Report , June 2009 Sampling Event	June 29, 2010
Annual LTGM Report , June 2012 Sampling Event	July 31, 2013
MEC Events	Date
FGGM Ordnance Survey (1,400 Acre Parcel)	June 1994
FGGM UXO Risk Assessment	December 1995
An Ordnance and Explosives (OE) removal action - Tipton Airfield, Helicopter Hangar Area, and Fire Training Area.	1996
FGGM BRAC Parcel, UXO Survey and Data Analysis	June 1997
A 3-ft thick earthen MEC Safety Cover was installed at Inactive Landfill 1.	August 1998 – October 1999
Annual Non-Time Critical OE (NTCOE) Removal Action Report for Little Patuxent River and Tipton Airfield, Inactive Landfill 3, Sweep 2001	January 2002
Annual NTCOE Removal Action Long Term Monitoring (LTM) Report , 2002 Little Patuxent River Sweep	August 2002
Annual NTCOE Removal Action LTM Report , 2003 Little Patuxent River Sweep	December 2003
Annual NTCOE Removal Action LTM Report , 2004 Little Patuxent River Sweep	2004
Annual NTCOE Removal Action LTM Report , 2005 Little Patuxent River Sweep	2005
USACE performed an Ordnance Sweep at Inactive Landfill 3	March 30, 2006
Annual NTCOE Removal Action LTM Report , 2006 Little Patuxent River Sweep	12 October 2007
Annual NTCOE Removal Action LTM Report , 2007 Little Patuxent River Sweep	February 2009
Annual NTCOE Removal Action LTM Report , 2008 Little Patuxent River Sweep	January 2010
Annual NTCOE Removal Action LTM Report , 2009 Little Patuxent River Sweep	February 2010
Annual NTCOE Removal Action LTM Report , 2010 Little Patuxent River Sweep	December 2010
Annual NTCOE Removal Action LTM Report ft), 2011 Little Patuxent River Sweep	March 2012
Annual NTCOE Removal Action LTM Report ft), 2011 Little Patuxent River Sweep	January 2012

DESCRIPTION OF SELECTED REMEDY AND REMEDY IMPLEMENTATION

After reviewing the results of the RI, the Army and EPA issued two RODs for the TAP. The December 1998 ROD addressed Inactive Landfill 3, HHA, and the FTA, and the June 1999 ROD addressed Inactive Landfills 1 and 2. The selected remedy for all sites was the NFA with groundwater monitoring.

The selected NFA remedies incorporating the previously implemented removal actions represent a final remedial action determination with regard to the soils at Inactive Landfill 3, the HHA, and the FTA and the soils, sediment and surface water at Inactive Landfill 1 and Inactive Landfill 2. Both RODs state that under the NFA remedy, no further remedial action will be taken based upon both the current level of risk posed by contamination in these media and the protectiveness provided by prior removal actions.

In the December 1998 ROD, an interim remedial action determination for groundwater was made, meaning that the TAP groundwater contamination would be addressed under a separate base-wide groundwater remedial action evaluation. The Army conducted an additional groundwater investigation after the signing of the December 1998 ROD. The investigation and human health risk assessment results led to a final remedial action determination of NFA with groundwater monitoring for the TAP as provided in the July 1999 ROD.

The 1998 ROD does not provide soil RAOs because the selected remedy is NFA for soils. The 1999 ROD does not provide groundwater RAOs because the selected remedy for groundwater is NFA with groundwater monitoring. The groundwater monitoring is conducted to verify that contaminants at levels that would present a risk to human health are not migrating beyond the footprint of the Landfills and that the NFA remedy remains protective of human health and the environment.

BASIS FOR THIS EXPLANATION OF SIGNIFICANT DIFFERENCES

The Army and EPA have determined that the LUCs implemented at the Site pursuant to the 1998 DD and Addendum should be specifically referenced in the CERCLA remedy selection documents for the Site. The July 1998 DD, *Safety Precautions to be Taken at Tipton Airfield, Fort George G. Meade, Maryland*, provides the following LUCs to prevent MEC exposure at the TAP:

“As part of the property lease, the lessee will not conduct or permit its sublessees to conduct any surface or subsurface excavation, digging, drilling or other disturbance of soils to a depth of 4 feet or below, or below paved surface, without the prior written approval of the Government (Army) with the exception of emergency repair of existing utilities.”

The November 1998 DD Addendum added the following LUCs to prevent risks from exposure to contaminants in groundwater:

In order to further protect the public’s health and welfare, the restriction on drilling without prior written approval from the Army is being modified to prohibit the use of groundwater at Tipton for any potable or non-potable purposes except for use in conducting environmental studies; and a restriction to prohibit residential use without evaluation of residential exposure risks is added.

The prior RODs selecting NFA with groundwater monitoring relied on the existence of the LUCs as cited above. Although monitoring of groundwater migrating from the landfills over the past decade indicates that contaminants are not migrating beyond the boundaries of the landfills at levels that present a human health risk, it is likely that contaminant concentrations exceed levels that allow for unlimited use and

unrestricted exposure within the footprint of the landfills. In addition, UXO may be present in the landfills. Thus, the revisions to the RODs for these Sites, as described in this ESD, are necessary to clarify the purposes and objectives of the implemented remedies. Since the LUCs entail ongoing obligations to monitor and restrict or prohibit certain activities at the landfills, these LUCs need to be included in the CERCLA remedy selection documents, which establish the enforceable requirements for the Site. Therefore, this ESD includes the LUCs for these Sites as part of the CERCLA selected remedy.

DESCRIPTION OF SIGNIFICANT DIFFERENCES

The Army has developed this ESD to add the existing LUCs implemented under the 1998 DD and Addendum to the CERCLA RODs. As required by § 9.3.1.2 of the Fort Meade FFA, this ESD addresses 1) the need for sweeps of ordnance; 2) appropriate disposal of ordnance if discovered; and 3) land use control requirements. The frequency of analytical sampling will also be changed from biennial to annual.

A subsequent Land Use Control Remedial Design (LUC RD) will be prepared and submitted to EPA for review and approval in accordance with the FFA. The LUC RD will address implementation, monitoring, enforcement and reporting on the status of the LUCs. LUCs restrict excavation activities, prohibit all use of groundwater other than for environmental studies, and prohibit residential use of the site without evaluation of the residential exposure risk. These LUCs are described more fully in Tables 3 and 4, below. Figure 2 shows the area over which the LUCs will be applied at the Site. The prohibition on the use of groundwater will be maintained until the concentrations of hazardous substances in the groundwater are at such levels to allow for unlimited use and unrestricted exposure. The restrictions on excavation will remain in effect until the Army determines that the potential presence of MEC does not present an unacceptable risk to human health and the environment. The prohibition on residential use of the Site will remain in effect until such time as an evaluation of residential exposure risks indicates that no unacceptable risks to human health would be presented as a result of residential use of the Site. The Army will be responsible for implementing, maintaining, reporting on, and enforcing the LUCs. Although the Army may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the Army shall retain ultimate responsibility for remedy integrity.

The LUCs, which were implemented previously pursuant to the 1998 DD and Addendum, and modifications documented in this ESD are already incorporated into the FGGM Master Plan. The LUCs provide an additional degree of protection in conjunction with the existing remedial measures in place at each of the landfills: a minimum 3-foot-thick earthen UXO safety cover at Inactive Landfills 1 and 3; a fence around Inactive Landfill 2; and periodic UXO sweeps at Inactive Landfill 3. The Army and the EPA agree that the existing remedies in place at the three landfills, together with the LUCs, previously implemented pursuant to the Army DD and Addendum and incorporated into the CERCLA RODs through this ESD, provide adequate protection of human health and the environment. Groundwater migrating from the landfills has been monitored for over a decade and shows little contamination. Therefore, the primary risk these landfills present is through direct exposure to buried waste. The use of soil caps on these landfills prevent direct exposure to buried waste and/or munitions. Due to site-specific circumstances, protectiveness is attained through the existing physical remedial measures together with the LUCs described in this ESD. Additionally, as required under the existing remedy, the Army will continue to: (1) monitor the groundwater until contaminant levels are below levels specified in the TAP OU LTGM program; (2) perform periodic inspections of the inactive landfills and restrict development on and excavation into the inactive landfills; (3) conduct MEC sweeps of the Little Patuxent River and Inactive Landfill 3; and (4) conduct 5-year reviews to evaluate the frequency and need for continued

MEC sweeps and groundwater monitoring at the TAP OU. The LUCs with groundwater monitoring and engineering controls provide adequate protection for human health and the environment. Tables 3 and 4 present the existing LUCs for groundwater and MEC protection at the TAP, respectively.

Table 3. Summary of Groundwater Protection LUCs at the TAP

Groundwater Protection LUCs	LUC Source
Prohibit drilling of wells at the TAP.	Decision Document, <i>Safety Precautions to be taken at Tipton Airfield, Fort George G. Meade, Maryland</i> . Dated 9 July 1998 as amended by the <i>Safety Precautions to be taken at Tipton Airfield, Fort George G. Meade, Maryland</i> . Decision Document, dated 6 November 1998.
The restriction on drilling without prior written approval from the Army is modified to prohibit the use of groundwater at the TAP for any potable or nonpotable purposes except for environmental studies.	
Prohibit residential use of the property without evaluation of residential exposure risks.	

Table 4. Summary of MEC Protection LUCs at the TAP

MEC Protection LUCs	LUC Source
Prohibit any surface or subsurface excavations, digging, or other disturbances of soil, or beyond paved surface, without written approval of the Government.	Decision Document, <i>Safety Precautions to be taken at Tipton Airfield, Fort George G. Meade, Maryland</i> . Dated 9 July 1998.
Government approval is also required for activities in the first four ft, where there was previous clearance of ordnance items.	
The exception to the above LUCs is the emergency repair of existing utilities.	
The Army will retain Inactive Landfill 2 property and maintain site security. The fence will be inspected periodically and any damage will be repaired.	
Surface sweeps for MEC will be performed at Inactive Landfill 3 every 5 years to remove any potential MEC that might migrate to the surface. Next sweep at Inactive Landfill 3 is scheduled for 2016. The Army will periodically review the need to continue surface sweeps.	

REGULATORY COMMENTS

The changes to the 1998 and 1999 RODs as described in this ESD have been coordinated with MDE pursuant to 40 CFR § 300.435(c)(2). The State of Maryland concurs in this ESD.

STATUTORY DETERMINATIONS

The Army and the EPA have determined that the modified remedy as described in this ESD complies with the statutory requirements of Section 121 of CERCLA, 42 U.S.C. § 9621. The Army and EPA believe that the remedy, as revised by this ESD, will be protective of human health and the environment and will meet the Federal and State requirements that are applicable or relevant and appropriate to the remedial action as described in the 1998 and 1999 RODs and this ESD. This ESD documents that the COMAR closure regulations which were applicable or relevant and appropriate requirements (ARARs) at the time of the issuance of the RODs have been satisfied. There are no ARARs relevant to the implementation of LUCs at the site.

The Army and EPA are in agreement, and MDE concurs, that the existing remedies in place at the three landfills, together with the LUCs previously implemented pursuant to the Army DD and Addendum and incorporated into the CERCLA remedy through this ESD, provide adequate protection of human health and the environment. Therefore, the State's ARARs applicable to landfill closure were satisfied by the remedial actions taken previously at the landfills.

COMMUNITY INVOLVEMENT

The ESD and the information relied on in support of it are included in the Administrative Record. The Administrative Record is available for public review at the following two locations:

1) Anne Arundel County Library
2624 Annapolis Road
Severn, MD 21144

Phone: (410) 222-6280

Hours: Mon through Thu: 9:00 am to 9:00 pm
Fri and Sat: 9:00 am to 5:00 pm

2) Environmental Management Office

Attn: IMNE-PWE

4215 Roberts Ave; Suite 5115

Fort Meade, MD 20755-7068

Phone: (301) 677-9648

Hours: 7:30 am to 4 pm (Mon - Fri)

Any questions or requests for more information can be addressed to:

Department of the Army
Markus Craig
Office of the Assistant Chief of Staff for Installation
Management; BRAC Division
NC3-Taylor Building; 5064-A
2530 Crystal Drive
Arlington, VA 22202
Phone: (703) 545-2474

John Burchette
NPL/BRAC/Federal Facilities Branch
USEPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029
Phone: (215) 814-3378

Dr. Elisabeth Green
Project Manager, Federal Facilities Division
Maryland Department of the Environment
Land Restoration Program
1800 Washington Boulevard, Suite 625
Baltimore, MD 21230-1719
Phone: (410) 537-3346

Andrea Graham
Program Manager, USACE
Environmental and Munitions Design
Center
ATTN: CENAB-EN-HM
10 South Howard Street, 10th Floor
Baltimore, MD 21201
Phone: 443-986-3444


SIGNATURE

This Explanation of Significant Difference modifies the remedy selection documents for the Tipton Airfield Parcel to include land use controls for unexploded ordnance removal and groundwater restrictions, and modifies the frequency of groundwater LTM from biennial to annual.

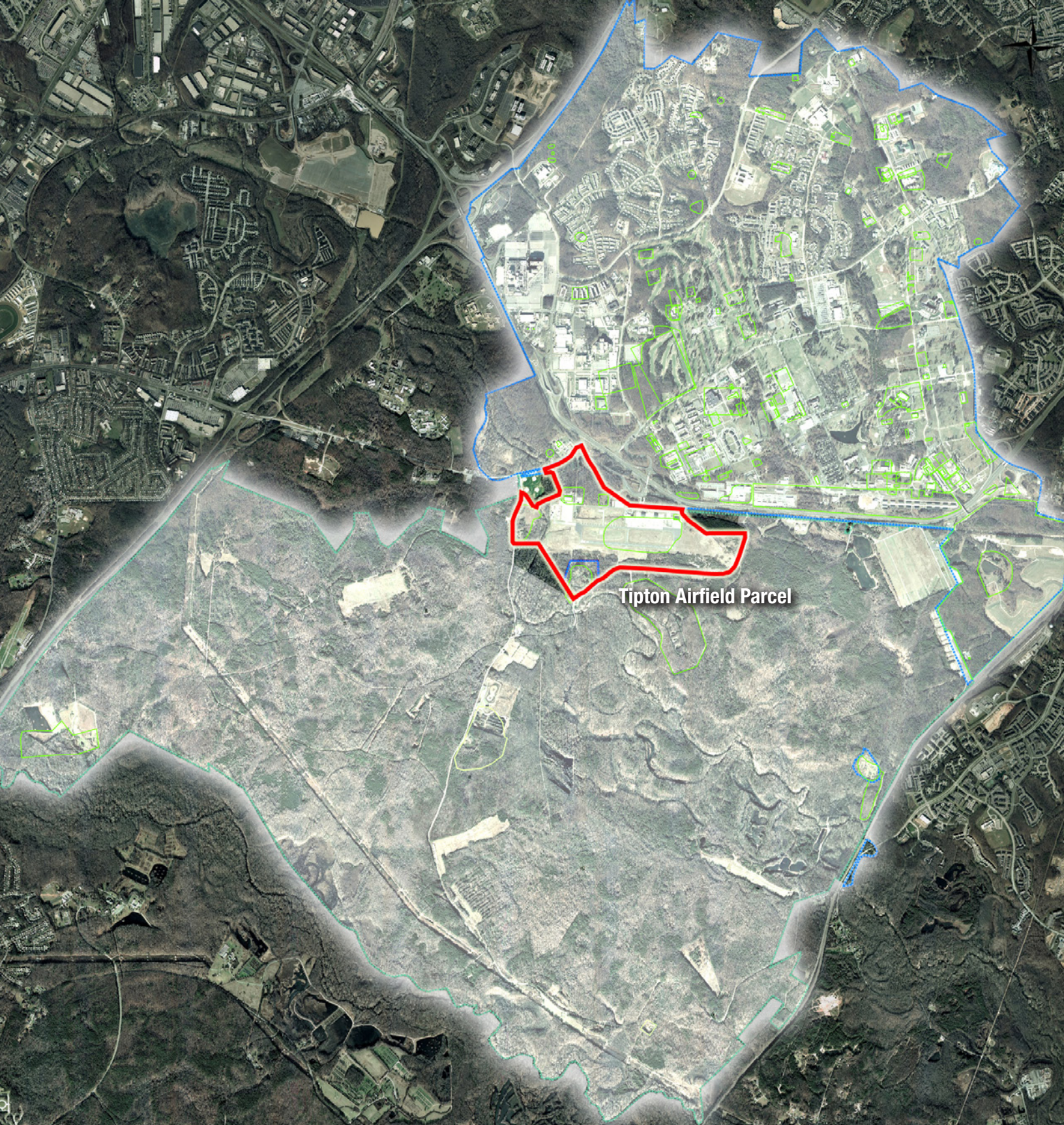
Approved By:


Mr. William J. O'Donnell, II
Chief, Reserve, Industrial and Medical Branch
Office of the Assistant Chief of Staff for
Installation Management

4 APR 14
Date


Cecil Rodrigues, Director
Hazardous Site Cleanup Division
U.S. Environmental Protection Agency, Region III

4/24/2014
Date



URS

tel. 301.820.3000

fax 301.820.3009

www.urs.com